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Incoming  
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OK

**From:** <John\_Isanhart@fws.gov>  
**To:** "Ingrid Wieser" <ingridwieser@utah.gov>  
**Date:** 2/18/2010 9:14 AM  
**Subject:** Re: Fw: Crandall Iron Discharge Issue  
**Attachments:** pic19164.gif

Thanks Ingrid.

I will take a look at the attachment over the next few days and "chew" on it. I'll get back with you soon... I'll also consider the potential for treatment with sodium hydroxide or bentonite (at first thought, I don't have any concerns with either of these).

John

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"Ingrid Wieser"  
<ingridwieser@utah.gov>  
To  
<John\_Isanhart@fws.gov>  
02/17/2010 06:00 PM cc  
<OGMCOAL@utah.gov>  
Subject  
Re: Fw: Crandall Iron Discharge Issue

Hi John-

I have attached the most recent submittal of the treatment proposal. The very last pages include maps and schematics of the treatment facility. They are using a maelstrom oxidizing unit to aerate the water before it enters the sedimentation pond. The iron is not getting enough settling time, so they are now proposing to add the chemical into the aeration process. The water will be discharging indefinitely; however, we do not

know how long the iron will continue to be at elevated levels. The company is now proposing to start adding the chemical at 1mg/L to see if that works. I will talk to the operator and chemical company to see if we can increase the testing factors for the chemical. Since I am not familiar with these, what tests should I ask for (above the 96 hour LC or EC50)? I will also send your last question to the Nalco representatives. Thanks for your input.

Ingrid

>>> 02/17/10 8:10 AM >>>

Ingrid

Is there a description or schematic of the water treatment system? My understanding right now is that there is a sedimentation pond and some chemical (nalclear) that will be added to remove the iron... I need a few more details beyond that. If there is a draft treatment protocol or proposal, I would appreciate seeing it. I'm betting the company knows about the half-life of the chemical in water, sediment, and soil. They should at least know the half-life of the active ingredient(s) and ingredients of potential environmental/health concern. The MSDS says fugacity modeling estimates that somewhere between 10-30% of the chemical will distribute into the water, and essentially the rest of it will partition into the sediment/soil. I'm assuming treatment will be indefinitely, so how much product over time are we talking? This stuff seems to be used frequently (or at least it isn't rare) in the wastewater treatment industry, but I'm unaware if Nalclear has been used in this type of field application.

Like I said before, when we are dealing with sensitive or endangered species, the typical 96 hr LC or EC50 test just doesn't cut it. As a precautionary measure, a safety factor of at least 100-fold below the measured level of toxicity is applied to sensitive species. Still, this only addresses acute toxicity and nothing about subchronic or chronic toxicity. In this case, since so little is known about the toxicity of the flocculent and there are 2 orders of magnitude difference in the acute toxicity of flocculent depending on the exposed species, I would apply at least another safety factor of 10 to address potential chronic toxicity to sensitive fish species.

Last question. This chemical seems to bind metals (at least divalent?) fairly well. Is there any potential for the chemical to change the water chemistry of the creek? In other words, what else could the chemical remove in addition to iron, and could that affect the creek's biological community?

Thanks. Feel free to call me. I know it's a lot to chew on in an email.

John

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Kevin  
McAbee/R6/FWS/DOI

To  
02/11/2010 08:28 AM John Isanhart/R6/FWS/DOI@FWS  
cc

Subject  
Fw: Iron Discharge Issue

I put the attachments in z:mcafee/co river consultations/crandall canyon mine

Kevin

----- Forwarded by Kevin McAbee/R6/FWS/DOI on 02/11/2010 08:22 AM -----

"Ingrid Wieser"

To

02/10/2010 05:15 PM "Joe Helfrich" cc

Subject  
Iron Discharge Issue

I have attached the MSDS sheets, photos, the macroinvertebrate report and

the product bulletin. The product has been altered because of everyone's concerns. The new product contains a polyacrylamide which is not carcinogenic. Sorry, it keeps changing so fast, I can hardly keep up. I asked our hydrologist about the questions you had regarding the degradation time of the product. Nalco has no information on that, but ideally, the chemicals should bind with the iron in the sediment pond before they reach the creek. The chemicals that do go down the stream should bind with the soil or anything else and degrade. Please let me know if you have any more questions. I can get some others who know more about the chemical together if you would like. Thanks!

[attachment "NALCLEAR\_7763\_MSDS.pdf" deleted by Kevin McAbee/R6/FWS/DOI]

[attachment "Product Bulletin\_7763.pdf" deleted by Kevin

McAbee/R6/FWS/DOI] [attachment "streamCleanUp 001.jpg" deleted by Kevin

McAbee/R6/FWS/DOI] [attachment "streamCleanUp 002.jpg" deleted by Kevin

McAbee/R6/FWS/DOI] [attachment "Crandall macro report inc appendices 01 28 10-1.pdf" deleted by Kevin McAbee/R6/FWS/DOI]

[attachment "0001.pdf" deleted by John Isanhart/R6/FWS/DOI]